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TURKEY

PERFORMANCE TESTS 1967

*Report of Central Turkey Meat
Production Tests and
Statistical Analysis of
Performance Records*

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Information in this report was compiled by the Animal Husbandry Research Division, Agricultural Research Service, from data supplied by the Test Supervisors. The Statistical Analysis was made by Biometrical Services, ARS. The publication of this report should not be construed as implying approval or endorsement by the U. S. Department of Agriculture of any of the stocks tested.

This publication includes reports of results from two turkey meat production tests conducted in 1967. The tests followed the procedures for central turkey meat production tests as provided in the National Turkey Improvement Plan. The detailed provisions for the tests are contained in USDA Miscellaneous Publication No. 739. Copies of this publication may be obtained from Official State Agencies for the National Turkey Improvement Plan or by writing directly to the Poultry Research Branch, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md. 20705.

TESTING PROCEDURE

The procedure followed in each test provided equal environment for each entry, but test facilities and details of the methods varied. Some of the variations between tests were as follows:

Sampling: The same methods were used by both tests to obtain the sample of poults for the entries. A representative of the entrant's Official State Agency selected a sample of eggs from a supply being used to produce poults of the stock entered. A prescribed method of randomization was followed to provide a sample that was typical of the entire supply. The eggs from all entrants in each test were set in the same incubators and, from the salable poults hatched, 100 were selected at random as the entry. The poults were then individually identified by wing bands.

In a few cases, the egg sample did not produce enough salable poults, and the entry started with less than 100 birds. However, because the performance data were collected on an individual bird basis, these variations gave no advantage or handicap to the affected entries in the final results.

Housing: In both tests the poults from all entries were intermingled under the brooders. In Pennsylvania the entries and sexes were separated at 7 weeks. In Minnesota the entries were separated at 8 weeks of age and divided into two lots of equal numbers of toms and hens that were maintained as replicate pens for the remainder of the test.

Growing Periods: Length of the growing periods varied between tests. The growing period for hens was 20 weeks at Minnesota and 22 weeks at Pennsylvania; that for toms ranged from 24 to 25 weeks. The age of the birds at the end of the test is indicated in each test report as the age for the final live weights.

Mortality: Mortality figures for Minnesota were based on the number of birds started. Pennsylvania mortality figures were omitted because of a disease break in the young poults.

Live Weights: In the Minnesota test the hens were weighed at 8, 12, 18, and 20 weeks of age while the toms were weighed at 8, 12, 20, and 24 weeks. The hens in the Pennsylvania test were weighed at 7, 12, and 22 weeks and the toms at 7, 12, and 25 weeks of age.

Eviscerated Weights: The eviscerated weights reported are the weights of the fully dressed carcasses and include the weights of necks and giblets, except the Pennsylvania toms, where the weight of the giblets were not included. In Pennsylvania the carcasses were weighed immediately after dressing; in Minnesota they were placed in chill tanks for several hours before weighing.

Body Measurements: The methods used for taking body measurements varied. In Minnesota the test measured the live birds; in Pennsylvania the test measured at the New York dressed stage.

Defects: Pendulous crop, roach back, leg weakness, and breast blisters were recorded when observed at any time during the growing period or in the dressing process.

Feed Conversion: Feed efficiency was measured by both tests and was reported as the pounds of feed required to produce a pound of live turkey from 1 day of age to time of slaughter. Feed consumption per entry was estimated for the initial period prior to the separation of the entries. The estimated feed consumed per entry

during the initial period was based on the feed conversion ratio of the intermingled unit and the weight of the entry at the end of the period. During the remainder of the test, the weight of feed consumed was recorded by entries.

Feed conversion ratios were computed by two methods. The values reported under Method 1 are the pounds of feed required to produce a pound of marketable turkey. This method of computation is most commonly used by commercial growers and is more likely to reflect the probable overall economic returns. However, the ability of the stock to convert feed to meat may be confounded by mortality that occurred during the growing period. Method 2 tends to eliminate the influence of mortality by adding to the weight of marketable turkeys the weight at time of death of the birds that had died before the end of the test.

EVALUATION OF RESULTS

No direct comparison should be made among entries in different tests. Because differences in the performance of entries in different tests may be due to variations in testing procedures, results reported in this publication should be directly compared only among entries within a test (tables 1 and 2).

In comparing entries, the possibility of differences due to chance alone should be recognized. Obviously, small differences may be attributed to chance rather than to a genetic difference in the stocks tested. However, differences should not be ignored solely because they are small, nor should larger differences be accepted as signifying genetic differences because they are large.

It would be difficult to determine precisely what part of the difference between two entries was due to a true genetic difference in the stocks and which was due to chance alone. Statistical procedures may be applied to test data that will indicate the probability of similar differences occurring in subsequent tests. The NTIP provides that a statistical procedure, such as Duncan's Multiple Range test, be applied to central turkey meat production tests and that the results be included in the national summary.

STATISTICAL SIGNIFICANCE OF DIFFERENCES

In applying Duncan's Multiple Range test, the weights and measurements of each entry were compared to those of every other entry within a test. The differences were tested to determine whether they were statistically significant. The results of the statistical analysis were reported in a line chart that was prepared as follows: (1) For each test and for each trait measured, the entry numbers shown with the entrant's name in tables 1 and 2 were arranged so that the entry having the largest weight or measurement appears on the left; those with less weight or measurement appear in decending order on the right. (2) An underscore was then drawn under the first entry number and was extended under each entry that did not differ significantly from the first entry. (3) This procedure was followed for each entry in the test.

In the completed charts that follow tables 1 and 2, entries whose numbers are underscored by a common line were not significantly different. In the following illustration, entry No. 3 was the largest but it was not significantly different from entries 5 and 2. Entry 5 was not significantly different from 3, 2, 4, or 9, but it was significantly larger than 10, 8, 7, 1, and 6. Entry 6 was the smallest, but it was not significantly smaller than 7 or 1.

Entry No.	3	5	2	4	9	10	8	7	1	6
-----------	---	---	---	---	---	----	---	---	---	---

EXPLANATION OF TERMS AND ABBREVIATIONS

Entrant: Tables 1 and 2 show only the abbreviated names of the entrants and the State in which they are located. The complete names and addresses of all entrants appear under the heading "Entrants in the 1967 Turkey Meat Production Tests."

Kind of Stock: Abbreviations have the following meaning:

BBB, Broad Breasted Bronze; BBW, Broad Breasted White; Mid. W, Midget White; BR, Breeder Replacement; and SF, Supply Flock.

Mating Procedure: Abbreviations have the following meaning:

Nat., natural mating; Art., artificial insemination; and Both, natural mating, supplemented with artificial insemination.

Feed Conversion: The values reported are the pounds of feed used to produce 1 pound of live turkey.

Method 1. Includes the weight of marketable turkeys only.

Method 2. Includes the weight of marketable turkeys, plus the weight at time of death of birds that died during the growing period and the final weight of other unmarketable birds.

Eviscerated Weight: The weight of the fully dressed birds, including the neck and giblets (except Pennsylvania toms which do not include the weight of the giblets).

Eviscerated Yield: The eviscerated weight expressed as a percentage of the live weight.

Body Measurements:

Breast Width - Measured at the widest point 1 3/4 inches above the keel

Body Depth - Measured at the deepest point

Keel Length - Measured as a straight line between the front and rear ends of the keel

Defects: The percentage of birds with pendulous crop, roach back, leg weakness, or breast blisters is computed from the number of birds started.

1967 TURKEY MEAT PRODUCTION TESTS AND SUPERVISORS

Minnesota Central Random Sample Turkey Meat Production Test

(Supervisor: Robert E. Moehrle, 430 State Office Building, St. Paul, Minn. 55101)

Central Random Sample Turkey Meat Production Test of Pennsylvania

(Supervisor: Charles W. Dorsey, Dept. of Agriculture, 2301 North Cameron Street, Harrisburg, Pa. 17120)

ENTRANTS IN 1967 CENTRAL TURKEY MEAT PRODUCTION TESTS

Brookside Turkey Farm, Sabillasville, Md. 21780

Chucks Hatchery, Inc., 213 First Avenue, NE., Aitkin, Minn. 56431

Gozzi Breeding Farms, Inc., Route 1, Guilford, Conn. 06437

Jaindl's Turkey Farm, Route 3, Allentown, Pa. 18104

Janssen Farms Hatcheries, Inc., Zeeland, Mich. 49464

Andrew B. Ludwig, Route #1, Ephrata, Pa. 17522

Marston's Turkeyland, Route #2, Zephyrhills, Fla. 33599

Rose-A-Linda Turkey Farms & Hatchery, 7842 Elmont Avenue, Elverta, Calif. 95626

Richard Runck, RR #1, New Ulm, Minn. 56073

Fred W. Schultz & Son, P.O. Box 246, Croton Falls, N. Y. 10519

Robert K. Shearer, Route 1, Reinholds, Pa. 17569

Williams Turkey Breeding Farms, P.O. Box 2, Oakdale, Calif. 95361

Wright's Turkey Hatchery, Aitkin, Minn. 56431

Table 1. - Minnesota Central Random

Entrant	Strain or trade name	Kind of stock	Mating proced- ure	Birds in flock sampled	Sex	Average live weight at age of --				
						8	12	18	20	24
						weeks	weeks	weeks	weeks	weeks
						Lb.	Lb.	Lb.	Lb.	Lb.
1. Chucks (Minn.)	Gozzi Line 300	BBW SF	Both	10,000	Toms Hens	3.6 3.0	7.7 6.0	---- 11.0	17.2 13.0	24.5
2. Janssen (Mich.)	Big J Strain Cross	BBW SF	Both	3,000	Toms Hens	3.5 2.8	7.4 5.8	---- 10.4	16.9 12.4	23.7 ----
3. Marston (Fla.)	Broad White	BBW SF	Both	1,300	Toms Hens	3.8 3.5	7.8 6.4	---- 10.8	16.9 12.6	22.3 ----
4. Runck (Minn.)	Runck Strain Cross	BBW SF	Both	485	Toms Hens	3.5 2.9	7.7 5.8	---- 10.9	17.5 13.0	24.3 ----
5. Williams (Calif.)	Williams "Big W"	BBW SF	Art.	20,000	Toms Hens	4.3 3.4	9.1 7.1	---- 12.6	19.1 14.6	26.3 ----
6. Williams (Calif.)	Williams "Big W"	BBB SF	Art.	20,000	Toms Hens	3.6 2.7	7.6 5.9	---- 11.6	18.3 14.1	26.1 ----
7. Wright (Minn.)	Broad White	BBW SF	Art.	6,500	Toms Hens	3.7 3.2	8.2 6.5	---- 11.6	17.9 13.7	24.2 ----
Avg. of bronze entries		BBB	----	-----	Toms Hens	3.6 2.7	7.6 5.9	---- 11.6	18.3 14.1	26.1 ----
Avg. of white entries		BBW	----	-----	Toms Hens	3.7 3.1	8.0 6.3	---- 11.2	17.6 13.2	24.2 ----
Avg. of all entries		BBB BBW	----	-----	Toms Hens	3.7 3.1	7.9 6.2	---- 11.3	17.4 13.3	24.5 ----

The statistical significance of differences between entries according to Duncan's Multiple Range test follows.

Final Live Weight						
Toms						
Entry No.	5	6	1	4	7	2
						3
Hens						
Entry No.	5	6	7	4	1	3
						2
Eviscerated Weight						
Toms						
Entry No.	5	6	4	1	7	2
						3
Hens						
Entry No.	5	6	7	4	1	3
						2
Eviscerated Yield						
Toms						
Entry No.	4	6	2	5	1	7
						3
Hens						
Entry No.	4	1	2	3	7	6
						5

Sample Turkey Meat Production Test

Eviscerated		Feed conversion		Measurements			Mort- ality	Pend- ulous crop	Roach back	Leg weak- ness	Breast blisters	Entrant
		Method 1	Method 2	Breast width	Body depth	Keel length						
Lb.	Pct.			In.	In.	In.	Pct.	Pct.	Pct.	Pct.	Pct.	
20.7	84.5	3.04	3.15	4.8	9.3	7.0	3.3	0.0	0.0	8.3	0.0	1.
10.6	81.4			4.2	7.1	5.4		5.4	0.0	0.0	0.0	Chucks
20.1	85.0	3.35	3.37	4.8	9.3	6.7	0.0	0.0	0.0	0.0	0.0	2.
10.0	81.1			4.0	7.1	5.2		2.4	0.0	2.4	0.0	Janssen
18.8	84.2	3.35	3.36	4.6	9.1	7.0	0.0	0.0	0.0	5.0	0.0	3.
10.2	81.1			4.1	6.9	5.7		0.0	0.0	0.0	0.0	Marston
20.8	85.6	3.20	3.24	5.1	9.5	6.8	0.0	0.0	0.0	7.1	0.0	4.
10.7	82.2			4.2	7.2	5.5		0.0	0.0	5.5	0.0	Runck
22.3	84.6	3.18	3.32	4.8	9.7	7.0	1.0	0.0	0.0	9.1	0.0	5.
11.7	80.1			4.2	7.4	5.5		0.0	0.0	2.2	0.0	Williams
22.2	85.3	3.15	3.24	4.6	9.7	7.2	2.3	0.0	0.0	8.8	2.9	6.
11.4	80.7			4.0	7.2	5.4		2.1	0.0	2.1	0.0	Williams
20.5	84.4	3.45	3.65	4.4	9.8	7.0	2.0	0.0	0.0	5.1	0.0	7.
11.1	81.0			4.0	7.5	5.6		0.0	0.0	1.9	0.0	Wright
22.2	85.3	3.15	3.24	4.6	9.7	7.2	2.3	0.0	0.0	8.8	2.9	Avg. bronze
11.4	80.7			4.0	7.2	5.4		2.1	0.0	2.1	0.0	entries
20.5	84.7	3.26	3.35	4.8	9.5	6.9	1.1	0.0	0.0	5.8	0.0	Avg. white
10.5	81.2			4.1	7.2	5.5		1.3	0.0	2.0	0.0	entries
20.8	84.8	3.25	3.33	4.7	9.5	7.0	1.2	0.0	0.0	6.2	0.4	Avg. all
10.7	81.1			4.1	7.2	5.5		1.4	0.0	2.0	0.0	entries

The statistical significance of differences between entries according to Duncan's Multiple Range test follows.

		Breast Width						
Toms								
Entry No.		4	1	5	2	6	3	7
Hens								
Entry No.		4	1	5	3	2	7	6
		Body Depth						
Toms								
Entry No.		7	6	5	4	1	2	3
Hens								
Entry No.		7	5	4	6	2	1	3
		Keel Length						
Toms								
Entry No.		6	3	5	7	1	4	2
Hens								
Entry No.		3	7	5	4	6	1	2

Table 2. - Central Random Sample Turkey Meat

Entrant	Strain or trade name	Kind of stock	Mating proced- ure	Birds in flock sampled	Sex	Average live weight at age of --			
						7 weeks	12 weeks	22 weeks	25 weeks
						Lb.	Lb.	Lb.	Lb.
1. Brookside (Md.)	Brookside Large Cross	BBW SF	Art.	20,000	Toms Hens	2.0 1.8	7.5 6.2	---- 15.6	26.4 ----
2. Brookside (Md.)	Brookside Large White	BBW SF	Art.	3,500	Toms Hens	2.0 2.0	7.2 6.3	---- 15.3	25.0 ----
3. Gozzi (Conn.)	Gozzi Line 300	BBW SF	Art.	1,200	Toms Hens	2.3 2.1	8.6 7.0	---- 17.0	25.6 ----
4. Jaindl (Pa.)	Jaindl JL	BBB SF	Art.	20,000	Toms Hens	2.3 2.0	7.7 7.3	---- 17.7	27.5 ----
5. Jaindl (Pa.)	Jaindl XL	BBB SF	Art.	2,000	Toms Hens	2.4 2.2	7.8 7.0	---- 17.5	27.2 ----
6. Jaindl (Pa.)	Jaindl Midget White	Mid.W SF	Art.	600	Toms Hens	1.7 1.6	6.3 5.1	---- 11.8	20.2 ----
7. Janssen (Mich.)	Dutch Boy JB-7 W 14	BBW SF	Both	3,000	Toms Hens	1.9 1.9	7.5 6.7	---- 16.6	27.7 ----
8. Ludwig (Pa.)	Washore	BBW SF	Art.	1,500	Toms Hens	1.9 1.8	6.7 5.7	---- 15.8	25.3 ----
9. Rose-A-Linda (Calif.)	Rose-A-Linda	BBW BR	Art.	1,100	Toms Hens	2.0 2.0	7.5 7.0	---- 16.8	27.6 ----
10. Schultz (N. Y.)	Schultz's Commercial	BBW SF	Art.	1,000	Toms Hens	2.0 2.0	7.1 6.3	---- 16.5	26.9 ----
11. Shearer (Pa.)	Janes Texas Special Bronze	BBB SF	Art.	10,000	Toms Hens	2.4 2.1	8.1 7.7	---- 17.5	27.1 ----
12. Shearer (Pa.)	Janes Texas Special White	BBW SF	Art.	20,000	Toms Hens	2.2 2.2	8.1 6.8	---- 16.5	27.1 ----
13. Williams (Calif.)	Williams "Big W" White	BBW SF	Art.	1,800	Toms Hens	2.3 2.2	9.0 7.3	---- 17.0	29.3 ----
14. Williams (Calif.)	Williams "Big W" Bronze	BBB SF	Art.	25,000	Toms Hens	2.4 2.0	8.4 8.0	---- 18.7	29.6 ----
15. Williams (Calif.)	Experimental	BBW SF	Art.	1,000	Toms Hens	2.3 2.1	8.7 7.3	---- 17.0	29.6 ----
16. Williams (Calif.)	Experimental	BBW SF	Art.	6,000	Toms Hens	1.8 1.7	7.1 6.0	---- 16.1	26.6 ----
Avg. of bronze entries		BBB	----	-----	Toms Hens	2.4 2.1	8.0 7.5	---- 17.9	27.9 ----
Avg. of white entries		BBW	----	-----	Toms Hens	2.0 2.0	7.6 6.5	---- 16.0	26.4 ----
Avg. of all entries		BBB BBW	----	-----	Toms Hens	2.1 2.0	7.7 6.7	---- 16.5	26.8 ----

Production Test of Pennsylvania

Eviscerated		Feed conversion		Measurements			Mort- ality	Pend- ulous crop	Roach back	Leg weak- ness	Breast blisters	Entrant
		Method 1	Method 2	Breast width	Body depth	Keel length						
Weight	Yield											
Lb.	Pct.			In.	In.	In.		Pct.	Pct.	Pct.	Pct.	
20.9	79.3	3.41	3.43	5.9	8.2	8.8	----	0.0	0.0	0.0	5.6	1.
12.7	80.8	3.33	3.33	5.5	6.5	6.6	----	0.0	0.0	0.0	0.0	Brookside
19.8	79.1	3.76	3.80	5.4	8.1	8.2	----	0.0	0.0	0.0	0.0	2.
12.3	80.1	3.55	3.55	5.5	6.4	6.6	----	0.0	0.0	0.0	0.0	Brookside
19.9	77.8	3.77	3.83	5.0	8.4	8.5	----	0.0	0.0	0.0	12.2	3.
13.5	79.6	3.44	3.47	5.0	6.7	6.6	----	0.0	0.0	0.0	0.0	Gozzi
22.4	81.6	3.40	3.40	6.6	7.8	8.7	----	0.0	0.0	0.0	8.0	4.
14.6	82.4	3.06	3.06	6.5	6.4	6.8	----	0.0	0.0	0.0	0.0	Jaindl
21.9	80.5	3.39	3.42	6.4	8.0	8.8	----	0.0	0.0	0.0	8.2	5.
14.3	81.4	3.16	3.16	6.5	6.6	6.6	----	0.0	0.0	0.0	0.0	Jaindl
15.9	78.8	3.64	3.64	5.7	7.1	7.7	----	0.0	0.0	0.0	0.0	6.
9.4	79.5	3.52	3.52	5.1	5.6	5.8	----	0.0	0.0	0.0	0.0	Jaindl
21.6	77.8	3.28	3.40	5.6	8.4	8.7	----	0.0	0.0	0.0	2.5	7.
13.1	78.9	3.36	3.36	5.4	6.4	6.8	----	0.0	0.0	0.0	0.0	Janssen
20.3	80.4	3.31	3.43	6.0	7.9	8.5	----	0.0	0.0	0.0	4.4	8.
12.7	80.2	3.12	3.12	5.9	6.2	6.5	----	0.0	0.0	0.0	0.0	Ludwig
22.2	80.2	3.37	3.57	5.9	8.3	8.8	----	0.0	0.0	0.0	0.0	9.
13.6	80.8	3.28	3.28	5.8	6.4	6.5	----	0.0	0.0	0.0	0.0	Rose-a-Linda
20.9	77.8	3.49	3.60	5.7	8.2	8.4	----	2.4	0.0	0.0	2.4	10.
13.2	80.1	3.24	3.28	5.4	6.5	6.7	----	0.0	0.0	0.0	0.0	Schultz
21.4	79.3	3.60	3.60	5.8	8.3	8.6	----	0.0	0.0	0.0	2.0	11.
14.2	81.1	3.08	3.11	5.9	6.5	6.7	----	0.0	0.0	0.0	0.0	Shearer
21.4	78.9	3.70	3.76	5.6	8.5	8.7	----	0.0	0.0	0.0	10.6	12.
13.4	81.0	3.30	3.30	5.8	6.3	6.8	----	0.0	0.0	0.0	0.0	Shearer
23.3	79.5	3.50	3.67	5.4	8.7	8.9	----	0.0	0.0	0.0	4.3	13.
13.7	80.9	3.47	3.47	5.4	6.5	6.7	----	0.0	0.0	0.0	0.0	Williams
23.5	79.5	3.50	3.58	5.6	8.7	9.1	----	0.0	0.0	0.0	9.5	14.
14.8	79.2	3.38	3.42	5.6	6.7	6.8	----	0.0	0.0	0.0	0.0	Williams
23.3	78.9	3.57	3.65	5.5	8.6	9.0	----	0.0	0.0	0.0	5.3	15.
13.3	78.4	3.44	3.46	4.7	6.8	6.8	----	0.0	0.0	0.0	0.0	Williams
21.4	80.3	3.67	3.80	6.0	8.1	8.6	----	0.0	0.0	0.0	0.0	16.
12.9	80.3	3.52	3.52	5.6	6.4	6.5	----	0.0	0.0	0.0	0.0	Williams
22.3	79.9	3.47	3.50	6.1	8.2	8.8	----	0.0	0.0	0.0	6.9	Avg. bronze
14.5	81.1	3.17	3.19	5.9	6.6	6.7	----	0.0	0.0	0.0	0.0	entries
20.9	79.1	3.54	3.63	5.6	8.2	8.6	----	0.2	0.0	0.0	3.9	Avg. white
12.8	80.1	3.38	3.39	5.4	6.4	6.6	----	0.0	0.0	0.0	0.0	entries
21.2	79.3	3.52	3.60	5.8	8.2	8.6	----	0.2	0.0	0.0	4.7	Avg. all
13.2	80.4	3.33	3.34	5.5	6.4	6.6	----	0.0	0.0	0.0	0.0	entries

CENTRAL RANDOM SAMPLE TURKEY MEAT PRODUCTION TEST OF PENNSYLVANIA

The statistical significance of differences between entries according to Duncan's Multiple Range test follows.

		Final Live Weight															
Toms																	
Entry No.		15	14	13	7	9	4	5	11	12	10	16	1	3	8	2	6
Hens																	
Entry No.		14	4	5	11	15	13	3	9	7	12	10	16	8	1	2	6
		Eviscerated Weight															
Toms																	
Entry No.		14	15	13	4	9	5	7	11	12	16	10	1	8	3	2	6
Hens																	
Entry No.		14	4	5	11	13	9	3	12	15	10	7	16	8	1	2	6
		Eviscerated Yield															
Toms																	
Entry No.		4	5	8	16	9	14	13	11	1	2	15	12	6	3	10	7
Hens																	
Entry No.		4	5	11	12	13	9	1	16	8	10	2	3	6	14	7	15
		Breast Width															
Toms																	
Entry No.		4	5	8	16	9	1	11	10	6	7	14	12	15	2	13	3
Hens																	
Entry No.		4	5	8	11	9	12	16	14	2	1	7	13	10	6	3	15
		Body Depth															
Toms																	
Entry No.		14	13	15	12	3	7	11	9	1	10	2	16	5	8	4	6
Hens																	
Entry No.		15	14	3	5	7	13	11	10	1	4	2	16	9	12	8	6
		Keel Length															
Toms																	
Entry No.		14	15	13	9	5	1	7	4	12	11	16	8	3	10	2	6
Hens																	
Entry No.		12	15	7	14	4	10	13	11	2	5	1	3	8	9	16	6

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